effect of absorbing to a certain extent the present oversupply of gold. It would scarcely be effective in keeping down the average price level until a far greater rise in the effective reserve requirement had been made.

The calculations by which the author shows that had his system been in vogue during the last few years the price level would have remained sensibly constant are based upon the assumption that a one per cent. rise in the amount of gold demanded for a dollar brings about a one per cent. fall in the price level. On a certain vague value theory of money this may appear reasonable, but from the point of view of the equation of exchange it is far from obvious. The one thing we must bear in mind is that $M'V'$ must be kept under control, and to a less extent MV. The author would have done much better to stick to his equation and calculate what effect his proposition would have had upon the changes in $M'V'$. That would have been more scientific.

Lowering the price of gold could diminish the increase of M' in three ways. First, by slackening the output. The lowering would probably have to go a long way, however, before the slackening became considerable. Second, by diverting gold from banking uses into the arts. Whether the arts, which now consume only about one third the annual output as against two thirds which goes to monetary and banking uses, could well absorb a much greater quantity of gold unless the price were very much lowered is not evident. Third, by augmenting the effective reserve requirements, as above explained. What we must have is some sort of a sink for gold. Indeed, it occurs to us to suggest that without at all disturbing the ratio of exchange between gold and dollars, we could accomplish the desired regulation of prices by insisting upon the strengthening of reserves. Suppose all banks receiving deposits subject to check were compelled to maintain a 50 per cent. reserve on all new business beginning with 1914. An increase of 15 billions in trade would then call for 150 millions in gold instead of the much smaller amount at present required. To make banking less profitable and safer might be easier and more directly effective than to discourage gold mining.

So much attention has been devoted to Fisher's plan for regulating the price level because the subject is actively under discussion all over the world, because Fisher has failed to maintain the scientific excellence with which he started out, and because he has apparently developed a method of attack which is better and surer than the one he uses. In view, however, of the almost unanimous indorsement he has received we feel very apologetic about these criticisms we offer.

Some parts of the work we have scarcely touched upon, parts which from a scientific point of view might seem to merit more notice in this weekly than the parts we have discussed. For instance, there is in Chap. X. an analysis of the best index numbers of purchasing power and in an appendix a masterly analytical treatment of the various types of index numbers which show the defects and the advantages of different types for different purposes. And in general there is much of excellent scientific value throughout the appendices. But we must pass it by, as we do much of the historical matter (Chap. VII.), and the discussion of indirect influences which exert secondary effects on the equation of exchange (Chaps. V.–VI.).

The arrangement of the book is very thoughtful toward the reader. Not only are the table of contents and the index exceptionally full, but there is a little foreword wherein readers of different types are instructed as to where they will find what they in particular are looking for. The mathematical work is relegated to the appendices, and so are the more subtle developments. The book should be read by everybody at all interested in any of the questions it treats.

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The Mesozoic Flora of Graham Land. By T. G. HALLE. Wissenschaftliche Ergebnisse d. Schwedischen Süd-polar-Expedition, 1901–

1903. Bd. III., Lief. 14. Pp. 123. Pls. IX. Stockholm. 1913.

The recent renewed interest in Antarctic exploration, the discovery of the South Pole, the unfortunate fatality attending the English expedition, etc., have focused attention on this *terra incognita*. There is in this region so much in the way of possibility as regards the origins of floras and faunas, centers of distribution, and possible migration routes, that everything which tends to throw light on its past life is likely to prove of absorbing interest, and in this connection it is a pleasure to note the appearance of Dr. Halle's splendid memoir on the Mesozoic flora of Graham Land which is the first Mesozoic flora known from the Antarctic. Previous to the work of the Swedish South Polar Expedition our knowledge of the ancient Antarctic vegetation was extremely limited. The present report is based on a very large collection made, it is said, under conditions of the greatest hardship, by Dr. J. G. Anderson at Hope Bay, Graham Land. The material came from a single series of hard, dark, slaty rocks and is regarded as Middle Jurassic in age. The flora embraces 61 forms of which, however, nearly 20 have not been given specific names. They are distributed among the several groups as follows: Filicales 25; Cycadales 17; Coniferales 16; unknown 3. It is of interest to note that the Ginkgoales, which are so important and varied an element in the northern hemisphere, are entirely absent in the Antarctic, as indeed they are in the Gondwanas of India. *Podozamites,* which is so abundant and variable in the north, is absent from the Hope Bay collection and is represented only by fragments in the Indian localities. Cycads are abundantly present at Hope Bay but they are all small-leafed species, while the conifers were abundant in materials but not well preserved.

Although the author has made quite a number of new species—on the wise basis that it is better to give a new name that may ultimately become a synonym, than to lump doubtful material under an old name that later may have to be divided—there are no less than 22 species previously known. Of these, 9 species are common to the Lower Oolites of England, 8 to the Upper Gondwanas of India, and 5 to the Jurassic of California and Oregon, with others which are scattered at various well-known Jurassic localities. The close relation existing between the Jurassic flora of Graham Land and other contemporaneous floras is certainly remarkable when considered in regard to its remoteness from these floras. In the nearest continent, South America, there are no floras of any importance that can be considered contemporaneous with the Antarctic one. Dr. Halle concludes as follows: "Though the closest argument is with the Jurassic flora of England, the resemblance to the Indian Upper Gondwana flora is nearly as great. The Hope Bay flora tends thereby to lessen yet more the differences between these floras and thus becomes another important illustration of the uniformity and world-wide distribution of Jurassic floras. This uniformity is all the more striking because of the pronounced differentiation of the world's vegetation into two different phyto-geographical provinces at the end of the Paleozoic, which difference would appear to have become almost extinguished in Jurassic time."

F. H. Knowlton

SPECIAL ARTICLES

THE PHYSICO-CHEMICAL CONDITIONS OF ANESTHETIC ACTION. CORRELATION BETWEEN THE ANTI-STIMULATING AND THE ANTI-CYTOLYTIC ACTION OF ANESTHETICS

The anti-stimulating action of lipoid-solvent and other anesthetics is well known. Irritable tissues become temporarily irresponsive when exposed to solutions of these substances in certain concentrations, which must not be too high—otherwise cytolysis results, or too low—in which case irritability may be increased instead of decreased. The precise nature of the change in the irritable elements conditioning the loss of irritability remains obscure. The Overton-Meyer theory refers